

REMARKS

Reconsideration and allowance are respectfully requested.

Remarks Regarding Amendments

The support for the amendment to claim 1 is in paragraph [0097] of the published Application (U.S. Publication 2007/0084904). New claims 23-25 are supported in the Specification on paragraph [0125]. Claims 12-14, 16-18, and 20-22 were withdrawn by the Examiner in the August 25, 2009 Office Action. They are marked as such to reflect their status. No new matter is introduced by these claim amendments and their entry is requested.

Remarks Regarding Section 102

A claim is anticipated only if each and every limitation as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is claimed. See *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claims 1, 15 and 19 stand rejected under 35 U.S.C. 102(b) as allegedly anticipated by Kamiwoshi (JP 2002-170427). Applicants traverse.

Kamiwoshi discloses the outermost layer of a conductive ball being made of an alloy containing Sn. However, Kamiwoshi does not teach or suggest anywhere (even in paragraph [0022]) that the alloy containing Sn (i.e., tin) has or should have a noneutectic composition. Thus, Kamiwoshi does not teach or suggest the claimed feature that "the first metal layer is the outermost layer of the conductive ball and made of a first alloy containing Sn and having noneutectic composition." Since each and every limitation of the claimed invention is not disclosed in Kamiwoshi, the Examiner's rejection of claims 1, 15 and 19, based on Kamiwoshi, should be withdrawn.

Claims 1-5, 15 and 19 stand rejected as allegedly anticipated by Jiang (U.S. Publication 2003/0119299). Applicants traverse.

Jiang discloses the use of 95% Pd (palladium) and 5% Sn (tin), which is noneutectic, as the outer layer 44, stating in paragraph 0051 that “the preferred solder used as the outer layer is approximately 95% Pd and 5% Sn.” Jiang, however, continues to state that “but is not limited to this Pd/Sn range (see, paragraph 0051, lines 9-10). This means that Jiang does not positively teach or suggest the use of Pd/Sn alloy having noneutectic composition.

In addition, Jiang does not teach or suggest that the outermost layer (44’), of the conductive ball, which is made of a first alloy containing Sn(tin) and having noneutectic composition is in contact with the second metal layer (44’’) which is made of a second alloy containing at least Cu or Ni (see, paragraph 0049-0052 and Fig. 3B).

For the reasons stated above, withdrawal of the Section 102 rejection is requested because Jiang fails to disclose all limitations of the claimed invention.

Remarks Regarding Section 103

A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. *In re Kahn*, 78 USPQ2d 1329, 1334 (Fed. Cir. 2006) citing *Graham v. John Deere*, 148 USPQ 459 (1966). The *Graham* analysis needs to be made explicitly. *KSR v. Teleflex*, 82 USPQ2d 1385, 1396 (2007). It requires findings of fact and a rational basis for combining the prior art disclosures to produce the claimed invention. See *id.* (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents . . . and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue”). The use of hindsight reasoning is impermissible. See *id.* at 1397 (“A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning”). Thus, a prima facie

case under Section 103(a) requires “some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct.” *Kahn* at 1335; see *KSR* at 1396.

Claims 6-11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang (U.S. Publication 2003/0119299) and Pfarr (U.S. Publication 2005/0008525 (copy enclosed) which, according to the examiner, is an English equivalent of PCT/DE02/04525 which was published as WO/051572 on June 23, 2003. Applicants traverse.

As discussed above, the claimed invention is not anticipated or obvious in view of Jiang. The addition of Pfarr does not cure the defects of Jiang. In contrast to the claimed invention, Pfarr indicates that eutectic alloy compositions are desirable, stating in paragraph 0041 that:

In combination with an additional 0.2% addition of nickel, according to the invention, the **desired eutectic properties of the alloy** according to the invention are almost completely maintained, because of the overall composition according to the invention. . . . (emphasis added).

In addition, paragraph 0031 cited by the Examiner describes that:

The lead-free soft solder obtained according to the invention, with a silver share of 5 to 5.5 weight-%, has **an almost eutectic melting and solidification temperature** in the range of a maximum of 214°C. to 215°C., avoids the formation of coarse tin dendrites when cooling, and guarantees a smooth and homogeneous surface of the solder. (emphasis added).

Thus, even combining Jiang with Pfarr would not reach the present invention as claimed in claims 6-11.


Withdrawal of the Section 103 rejection is requested for the reasons stated above.

Conclusion

Having fully responded to the pending Office Action, Applicants submit that the claims are in condition for allowance and earnestly solicit an early Notice to that effect. The Examiner is invited to contact the undersigned if additional information is required.

Respectfully submitted,

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